

CLAIMS

1. A mass memory storage device comprising:
a support arrangement configured to support a mass memory storage medium
5 which stores data at a substantially uniform density;
a drive arrangement operatively connected to the support arrangement such that
the drive arrangement rotates the mass memory storage medium at a substantially
constant rotational speed when the mass memory storage device is operated in its
intended way;

10 a read head for reading the data stored on the mass memory storage medium,
the read head being positioned adjacent to the stored data on the medium and the read
head being movable relative to the medium such that when the mass memory storage
medium is rotated at the constant speed, the data is read at a variable rate; and

15 a read channel arrangement for processing the data read by the read head, the
read channel arrangement having a substantially continuously variable read channel
data processing rate which varies according to the rate at which the read head reads
the data from the mass memory storage medium.

20 2. A device according to Claim 1, wherein the device is a CD drive and the
medium is a CD.

3. A device according to Claim 1, wherein the CD is a standard format CD in
which the data is stored at a substantially uniform density along a spiral track.

25 4. A device according to Claim 3, wherein the read head is moved radially as
the drive arrangement rotates the CD at a substantially constant rotational speed such
that the read head follows and reads data from the spiral track.

30 5. A device according to Claim 3, wherein the read channel data processing
rate varies in direct relationship with the radial position of the read head, thereby

allowing the read channel arrangement to process the data read by the read head at the rate at which the data is being ready by the read head from the spiral track of the CD.

5 6. A device according to Claim 1, wherein the device is a hard disk drive.

7. A device according to Claim 6, wherein the medium is a magnetic memory storage medium having the data stored on the medium at a substantially uniform density over substantially the entire memory storage area.

10 8. A device according to Claim 7, wherein the medium has a data storage format including a spiral track.

15 9. A device according to Claim 1, wherein the read head is an optical read head.

20 10. A device according to Claim 1, wherein the read head is a magnetic read head.

25 11. A device according to Claim 1, wherein the device is a floppy disk drive.

12. A device according to Claim 11, wherein the medium is a magnetic memory storage medium having the data stored on the medium at a substantially uniform density over substantially the entire memory storage area.

13. A device according to Claim 12, wherein the medium has a data storage format including a spiral track.

14. A computer system including a mass memory storage device for reading data stored on a data storage surface of a mass memory storage medium, the mass memory storage device comprising:

a housing that receives and supports a mass memory storage medium which stores data at a substantially uniform density;

a drive assembly operatively connected to the housing such that when the device is operated in its intended way, the drive assembly rotates the medium at a substantially constant rotational speed;

a read head for reading the data from the data storage surface of the medium, the read head being movably supported by the housing adjacent to the data storage surface of the medium, thereby causing the read head to read the data stored on the medium such that when the mass memory storage medium is rotated at the constant speed, the data is read at a variable rate; and

a read channel arrangement operatively connected to the read head, the read channel arrangement including a read channel processor which processes the data read by the read head and which has a continuously variable data processing rate that is varied according to the rate at which the read head reads the data on the medium.

15. A computer system according to Claim 14, wherein the device is a CD drive and the medium is a CD.

16. A computer system according to Claim 14, wherein the device is a hard disk drive and the medium is a magnetic memory storage medium which has the data stored on the medium at a substantially uniform density over substantially the entire memory storage area.

17. A computer system according to Claim 14, wherein the device is a floppy disk drive and the medium is a magnetic memory storage medium which has the data stored on the medium at a substantially uniform density over substantially the entire memory storage area.

18. A method of reading data stored on a mass memory storage medium, the method comprising the steps of:

supporting the mass memory storage medium having data stored on the medium
5 at a substantially uniform density;

rotating the medium at a substantially constant speed;

using a read head, reading the data stored on the medium by positioning the
read head adjacent to a desired portion of the medium and moving the read head
relative to the medium as the data is read such that when the mass memory storage
10 medium is rotated at the constant speed, the data is read at a variable rate; and

using a read head processor having a continuously variable processing rate,
processing the data read by the read head by varying the processing rate according to
the rate at which the read head reads the data on the medium.

19. A method according to Claim 18, wherein the medium is a medium having
data stored on the medium at a substantially uniform density selected from the group
including (i) a CD having data stored optically on a data storage surface of the CD, (ii) a
hard disk having data stored magnetically, and (iii) a floppy disk having data stored
magnetically.

20. A method of storing data on a mass memory storage medium having a
substantially uniform data storage density, the method comprising the steps of:

supporting the mass memory storage medium for rotation;

rotating the medium at a substantially constant speed;

25 using a write head, storing the data to the medium by positioning the write head
adjacent to a desired portion of the medium while the medium is rotated at the constant
speed and moving the write head relative to the medium as the data is stored; and

using a write head controller having a continuously variable data storing rate,
storing the data on the medium by varying the data storing rate according to the
30 position of the write head such that the data is stored at a substantially uniform density.

21. A method according to Claim 20, wherein the medium is a medium selected from the group including (i) a CD having data stored optically on a data storage surface of the CD, (ii) a hard disk having data stored magnetically, and (iii) a floppy disk having data stored magnetically.

22. A formatted magnetic mass memory storage disk medium, the medium comprising:

a magnetic memory storage material capable of storing data magnetically; and
a substrate supporting the memory storage material, the memory storage material being arranged in a format in which the data is stored on the disk medium at a substantially uniform density throughout substantially the entire usable memory storage area of the disk medium.

23. A disk medium according to Claim 22, wherein the format includes a spiral track.

24. A disk medium according to Claim 22, wherein the medium is a hard disk for use in a hard disk drive.

25. A disk medium according to Claim 22, wherein the medium is a floppy disk for use in a floppy disk drive.